REMARKS/ARGUMENTS

Reexamination of the captioned application is respectfully requested. This amendment assumes entry of the Amendment After Final[1] filed on April 30, 2006, which entry has been requested.

A. SUMMARY OF THIS AMENDMENT

By the current amendment, Applicants basically:

1. Thank the Examiner for allowance of claims 9, 12, 18, 28, 30, 32 and 34.
2. Thank the Examiner the indication of allowable subject matter in claims 5 and 25.
3. Amend independent claims 2, 8, 11 and 22 to specify that that an anode side surface of the anode-side collector has conductivity.
4. Amend claims 8 and 9 to delete the phrase "within the housing".
5. Cancel claim 18 without prejudice or disclaimer.
6. Respectfully traverse all prior art rejections.

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[1] The Amendment After Final filed April 30, 2006, implemented, e.g., the following: rewrote claims 5 and 25 as independent claims, with amended independent claim 25 including limitations of original claim 21; rewrote claims 2 and 22 as independent claims, including limitations of claims 1 and 21, respectively; amended independent claim 8 to include limitations of dependent claim 10; amended the dependency of claim 10 so that claim 10 depends from allowed claim 9; amended independent claim 11 to include limitations of claim 10; amended the dependency of claim 13 to depend only from claim 12; amended claims 2, 5, 10, 13, 22 and 25; cancelled claims 1, 3, 4, 6-7, 11, 14, 15, 19-21, 23, 24, 26, 27, 29, 31 and 33 without prejudice or disclaimer; and, added new claim 35 (as a combination of limitations from claims 23 and 25).

B. PATENTABILITY OF THE CLAIMS

Claims 1-4, 6-8, 10, 11, 13-15, 19, 20, 27, 29, 31 and 33 stand rejected under 35 USC 103(a) as being unpatentable over the Suzuki et al reference. Claims 21-24 and 26 under 35 USC 103(a) as being unpatentable over the Palmore et al reference. All prior art rejections are respectfully traversed for at least the following reasons.

According to one aspect of claims 2, 8, 11, and 22, an anode-side collector is a layer containing a biochemical catalyst which decomposes the material for fuel to generate hydrogen, the layer being formed within the housing between the anode side supply inlet and the anode. Moreover, each of claims 2, 8, 11, and 22 has been amended to specify that an anode side surface of the anode-side collector has conductivity[2].

This claimed structure advantageously facilitates:

- taking a current from the anode-side collector layer directly;
- taking a current from the anode which is attached to the anode-side collector layer as shown in the Fig. 1;
- a size reduction and shape simplification (as described on page 9, lines 5 to 8) of the specification;
- more efficient generation of electricity than the ordinary methanol fuel cell (as described on page 18, lines 10 to 14) of the specification.

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[2] The specification has also been amended to specify that an anode side surface of the anode-side collector is conductive. The amendments to the claims and specification are amply supported by the original disclosure, including Fig. 1 in conjunction with the teaching on page 16 of the specification that aluminum negative electrode 14 to copper spring 15 which are connected to an outer side of anode 4.

As the Examiner describes in the final OA, Karube et al. (Biotech and Bioeng. 1977) teach a fuel cell having a layer of C. butyricum immobilized on the surface of the fuel cell anode.

None of applied prior art -- including Karube et al. Karube et al. (Biotech and Bioeng. 1977) – disclose the feature of the anode-side collector is the layer containing the biochemical catalyst, which decomposes the material for fuel to generate hydrogen, and being within the housing, and thus enablement of taking a current from the layer containing the biochemical catalyst.

Suzuki et al. describes a gas-type hydrogen-oxygen fuel cell in which a reactor including an immobilized whole cell is located completely aside from an anode and a cathode (Fig. 10).

Karube et al. describes a biochemical fuel cell in which an anode and a cathode are located in different chambers connected with a salt bridge (Fig. 1). Furthermore, the anode is a rolled platinum black electrode, and one side of the platinum black electrode is covered with gel-entrapped microorganism (page 1728, second paragraph).

Neither Suzuki nor Karube teaches a layer containing an immobilized microorganism (or a biochemical catalyst) which has conductivity and is formed within a housing between the anode-side supply inlet and the anode.

By contrast, Applicants' anode-side collector serves as the layer containing the biochemical catalyst and is formed within the housing between the anode-side supply inlet and the anode. Therefore, Applicants' polymer electrolyte fuel cell facilitates taking current serially and efficiently from the anode thorough the layer containing the biochemical catalyst, thereby reducing volume of the polymer electrolyte fuel cell in comparison with the ordinary methanol fuel cell and other biochemical fuel cells. No

applied prior art reference -- including Karube et al. – teaches or suggests Applicants' claimed subject matter.

C. MISCELLANEOUS

In view of the foregoing and other considerations, all claims are deemed in condition for allowance. A formal indication of allowability is earnestly solicited.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

Should the Examiner feel that an interview with the undersigned would facilitate allowance of this application, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,
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